1.0 PROJECT DESCRIPTION

1.1 INTRODUCTION

The EIR will evaluate the potential environmental effects of a project proposed by Venoco, Inc. (Applicant) to resume oil production (Project) on State Tidelands Lease PRC 421.1 (PRC 421) adjacent to the city of Goleta, Santa Barbara County (Figure 1). A description of the project, its location and components is followed by the anticipated project schedule. Subsequent sections describe potential alternatives to the proposed Project, potential environmental impacts that would be addressed in the EIR, and the criteria that will be utilized to develop mitigation measures necessary to reduce potentially significant- impacts to a less-than-significant level.

1.2 PROJECT OBJECTIVE

Venoco is a privately held, independent oil and gas company that has filed an application with the California State Lands Commission (CSLC) to return oil and gas lease PRC 421 to oil production after ongoing production was temporarily shut-in in 1993. Based on current projections, the estimated productive life of PRC 421 would be twelve years and production is expected to be no more than an average of 700 barrels of oil per day (BOPD) in the first year, tapering off to approximately 100 BOPD by year 12 (Table 1).

Table 1. Projected Average Oil Production of PRC 421 Over the Twelve-Year Lifespan.

Year	Oil BOPD	Water BWPD	Year	Oil BOPD	Water BWPD
1	680.0	120.0	7	256.5	358.3
2	578.0	144.0	8	218.0	430.0
3	491.3	172.8	9	185.3	516.0
4	417.6	207.4	10	157.5	619.2
5	355.0	248.8	11	133.9	743.0
6	301.7	298.6	12	113.8	891.6

BOPD = barrels of oil per day; BWPD = barrels of water per day

1.3 SETTING

1.3.1 Geographic Setting

The existing facilities at Lease PRC 421 include two piers on State tide and submerged lands below the bluffs marking the southern limit of the Sand Piper Golf Course (Figure 2). Access to the facilities is provided by a road originating near Venoco's Ellwood Onshore Facility (EOF) and oil was previously exported by a six-inch pipeline connecting to Line 96 (Exxon-Mobil Pacific Onshore Transfer Pipeline). Portions of the access road and the pipeline lie within easements granted to Venoco by predecessors in interest of the Sand Piper Golf Course and are located in the city of Goleta, Santa Barbara County. The two piers provide support for two wells located on separate concrete caissons, identified as Well 421-1(water injection) and Well 421-2 (oil production). Each steel pile pier contains concrete caissons that are approximately

FIGURE 1

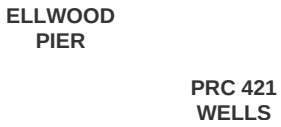

FIGURE 2

67 feet long, 42 feet wide and rise approximately 20 feet above mean sea level. The piers are located one half mile south of the EOF.

1.3.2 Background

The Ellwood Field trends east-west along the shoreline just south of the Sandpiper Golf course. The field is about four miles long and a half-mile wide. The field was discovered by Barnsdall Oil Company in July 1928 when the Luton-Bell No. 1 was completed flowing 1,755 BOPD of 37.8° American Petroleum Institute (API) low sulfur oil from the Lower Miocene Vaqueros formation. Development of the onshore acreage began in the late 1920s and exploitation of much of the greater tidelands section of the field started in the early 1930s using wells drilled from piers. The two remaining 421 wells were drilled from piers during 1929-1930. Peak production, of nearly 49 thousand barrels of oil per day, occurred in 1930. Early wells commonly flowed about 2,500 barrels of clean oil daily, but water encroachment and decreases in pressure necessitated the use of gas lift and pumping. The existence of a second Western structural high was determined from well 428-9 in 1937. The entirely offshore Western high was developed using high angle wells drilled from shore during the 1940s from Signal's Dos Pueblos property into State Leases PRC 129 and 208. The last producing wells were completed in the 1960s. Most of the wells located on piers were abandoned in the 1950s. Arco continued to produce the Dos Pueblos wells until 1993 and abandoned the wells in 1996.

Recent production information is only available for well 421-2 since it is the only remaining production well. The gravity of the oil from 421-2 is 35°. Well 421-1 initially tested in 1929 at 3,220 BOPD with a gravity of oil at 36.1°. Well 421-1 has not produced oil since 1972 and from 1972 to 1994, well 421-1 was used as a water disposal well. Table 2 provides a summary of the production from the PRC 421 wells.

Platform Holly is a self-contained, triple-decked, oil drilling and production platform built on PRC 3242.1 in 1966 to produce the reserves from the Rincon formation and has been in continuous operation ever since. Process and control equipment, drilling systems and living quarters have all been revamped in recent years. The platform sits in about 211 feet of water. The boat landing on the platform is at approximately 14 feet and a heliport pad is at approximately 81 feet above sea level. Presently, 30 well slots exist on the platform.

The platform produces oil/water emulsion and natural gas that are separately transported via subsea pipelines to the EOF. A portion of the produced gas is compressed to high pressure and recycled for artificial lift (gas lift) in producing wells.

The production rate from the platform has reached as high as 17,000 barrels (bbls) of wet emulsion per day (11,000 BOPD and 6,000 BWPD). Platform Holly is currently permitted for a production rate of 20,000 bbls of oil emulsion per day and 20,000 thousand cubic feet per day (MCFD) of gas. Current production from the Platform is approximately 3,500 BOPD, 10,000 BWPD, and 4,700 MCFD of gas.

Table 2. Production History for 421-1 and 421-2 (1928-2004)

Year	Oil MB	Water MB	Gas Mcf	Winj MB	Year	Oil MB	Water MB	Gas Mcf	Winj MB
1928	0.0	0.0	0.0	0.0	1970	8.6	0.0	77.7	0.0
1929	109.2	0.0	37.5	0.0	1971	8.1	0.5	73.2	0.0
1930	599.7	344.7	277.2	0.0	1972	13.3	2.3	24.0	0.0
1931	627.7	245.3	89.4	0.0	1966	8.6	0.0	95.2	0.0
1932	247.5	35.2	49.7	0.0	1967	9.7	0.0	99.0	0.0
1933	193.5	27.3	21.7	0.0	1968	11.8	0.0	108.4	0.0
1934	131.9	7.7	31.5	0.0	1969	10.4	0.0	93.7	0.0
1935	121.3	4.7	124.5	0.0	1970	8.6	0.0	77.7	0.0
1936	86.3	10.5	123.5	0.0	1971	8.1	0.5	73.2	0.0
1937	55.2	10.7	160.4	0.0	1972	13.3	2.3	24.0	0.0
1938	26.8	9.1	147.2	0.0	1973	11.3	2.6	78.0	0.0
1939	24.4	10.4	171.7	0.0	1974	7.6	1.9	70.3	90.0
1940	20.2	15.1	243.0	0.0	1975	12.7	2.5	75.5	90.0
1941	24.6	16.7	150.4	0.0	1976	15.1	3.3	103.4	90.0
1942	18.6	20.3	113.0	0.0	1977	12.2	2.6	85.9	93.0
1943	18.6	24.1	96.6	0.0	1978	14.0	3.3	98.8	99.0
1944	19.8	26.2	99.7	0.0	1979	14.3	2.7	101.0	101.0
1945	22.4	41.7	137.2	0.0	1980	15.1	3.5	122.4	122.0
1946	23.3	88.1	155.9	0.0	1981	15.6	3.2	126.1	126.0
1947	17.3	85.0	127.1	0.0	1982	17.1	3.6	138.1	138.0
1948	13.0	29.8	108.9	0.0	1983	15.0	2.8	105.6	106.0
1949	12.0	15.7	98.7	0.0	1984	18.9	3.4	144.6	144.0
1950	15.0	85.9	80.9	0.0	1985	16.2	3.0	119.9	119.0
1951	12.1	57.8	63.2	0.0	1986	17.9	1.2	127.2	127.0
1952	7.7	0.0	69.6	0.0	1987	18.8	0.3	128.0	128.0
1953	7.0	0.0	113.1	0.0	1988	18.6	0.0	120.1	120.0
1954	6.9	0.0	86.2	0.0	1989	22.4	0.0	129.8	129.0
1955	7.1	0.0	60.5	0.0	1990	20.2	0.0	115.7	116.0
1956	8.4	0.0	62.9	0.0	1991	15.5	0.0	80.0	80.0
1957	8.4	0.6	82.1	0.0	1992	19.9	0.0	90.6	91.0
1958	8.7	0.0	71.5	0.0	1993	8.1	0.0	39.5	82.0
1959	8.2	0.0	74.2	0.0	1994	0.0	0.0	0.0	0.0
1960	8.4	0.0	97.1	0.0	1995	0.0	0.0	0.0	0.0
1961	7.1	0.0	93.7	0.0	1996	0.0	0.0	0.0	0.0
1962	6.7	0.0	88.9	0.0	1997	0.0	0.0	0.0	0.0
1963	5.4	0.0	71.4	0.0	1998	0.0	0.0	0.0	0.0
1964	7.7	0.0	76.8	0.0	1999	0.0	0.0	0.0	0.0
1965	8.6	0.0	94.5	0.0	2000	1.8	0.0	0.0	0.0
1966	8.6	0.0	95.2	0.0	2001	16.5	0.0	0.0	0.0
1967	9.7	0.0	99.0	0.0	2002	0.0	0.0	0.0	0.0
1968	11.8	0.0	108.4	0.0	2003	0.0	0.0	0.0	0.0
1969	10.4	0.0	93.7	0.0	2004	0.0	0.0	0.0	0.0

MB = thousand barrels; Mcf = thousand cubic feet; Winj = Water injection

1.4 PROJECT COMPONENTS

1.4.1 Lease 421 Wells

Currently, both PRC421 wells are shut-in and equipped with subsurface safety vales and packers. Venoco, Inc. proposes to place both 421 wells back into service. Under this proposal, well 421-2 would be equipped with an Electric Submersible Pump ("ESP"), which would be located inside the casing of the well approximately 2,000 feet below ground level. Instrumentation and well control devices would be located near the wellhead and connected to remote alarm annunciation devices at the EOF. At no point will the fluids produced from the proposed Project enter the EOF.

Well 421-1

Well 421-1 would be returned to service as a water injection well. The source of water to be disposed of would be water that is separated from the gross fluid produced out of well 421-2. A Flow Safety Valve (FSV) will be installed as part of the wellhead piping to prevent reverse flow occurring from the well.

A workover rig will not be required to prepare 421-1 for injection service. The concrete coffer dam wall of the caisson has been permanently repaired by implementing the structural enhancements detailed in Venoco's proposal to the State Lands Commission dated February 23, 2004.

Well 421-2

Well 421-2 will have a downhole ESP pump installed (see workover program in attachment 2). A motor control panel (Centrilift 200 kVA Variable Frequency Drive) and a step-up transformer located at the EOF will supply 1500V power to the pump. For security reasons, the motor control panel and transformer will be located at the EOF rather than at the 421-2 pier. The ESP transformer and control panel would connect to 421-2 via a direct buried 200 kVA power cable. A second utility electric power cable will be laid in the same excavation with an integral communication cable for data transfer for supervisory control and data acquisition (SCADA) purposes. Utility power (480V) will be supplied to the 421-2 pier and a small step down transformer will be installed in an electrical panel to drop the voltage to 120V. A 120V power receptacle will be provided at the 421-2 well site to support future well testing, data transmission, chemical injection, or temporary lighting, should the need arise. A 120V utility power outlet will be located inside of the power panel, and will be a heavy duty, 20 Amp, "Arktite" type of plug receptacle. This type of receptacle requires specially designed mating plugs which are circuit breaking and require a twist to lock action in order to engage or disengage.

The wellhead will be equipped with current safety equipment and follow safety design criteria as specified in API RP 14C, *Safety Analysis Function Evaluation (SAFE) of Offshore Petroleum Production Systems*. These standards will provide, at a minimum, for the installation of a Sub-Surface Safety Valve (SSSV) and Surface Safety Valve (SSV) on the well. The oil discharge line will be equipped with High and Low pressure sensing switches. In the event that

these switches report high or low pressure, or in the event that any alarm forces a shutdown of the well, then the Surface Safety Valve and Sub Surface Safety Valve will automatically close and prevent oil being brought to the surface. To assure fail-safe operation, these valves will be designed to normally close in the absence of any power or energy to hold them open. The SSV will use a charge of nitrogen or hydraulic fluid to hold it open, and the SSSV will depend upon a hydraulic fluid source to hold it open. In the event of a shutdown scenario calling for closing of the SSV and SSSV valves, a solenoid will release a small amount of nitrogen pressure or hydraulic fluid to a storage tank and the valves will spring closed. A small pump will be provided to allow re-energization of the SSV and the SSSV valves when a well is restarted after a shutdown. The selection of the SSV and SSSV well actuators has been made to maintain a very low surface profile.

A trio of stainless steel equipment enclosures will be located at the wellhead, one used to house the gross oil meter, another to house the wellhead safety control panel, including high/low pressure pilots, hydraulic reservoir, and other necessary actuation equipment, and a third electrical box to house the utility power transformer and receptacle and electronics associated with the metering and communication of safety signals. The meter box is expected to be roughly 40 cubic feet in size, while the wellhead safety control panel and electrical panel are each expected to be 36 cubic feet in size. The electrical panel will also house the electrical service receptacle, an auxiliary stop switch to be used by well servicing personnel, and will include a tamper switch to alert staff at the EOF of possible tampering. A surveillance camera will be mounted on the 421-2 pier to monitor the condition of the piers. The live video feed will be displayed in the EOF control room.

The downhole pump is also provided with a multi-sensor to monitor downhole conditions such as motor load, motor winding temperature, intake temperature, intake and discharge pressures, pump vibration. This data will be transmitted over the power feed back to the motor control panel located at the EOF. The motor control panel will incorporate safety switches to automatically shut-in the pump in the event of a deviation from normal operating conditions such as might be caused by a pipeline rupture or a process interrupt.

At the Line 96 tie-in, a Flow Safety Valve (FSV) will be provided to prevent backflow of oil from the pipeline, thus providing protection against uncontrolled oil flow in the event of a catastrophic oil line failure. The 421-2 caisson will undergo repairs comparable to those already completed at Pier 421-1.

1.4.2 Proposed Crude Oil Separation Sequence

Separation of the produced oil, water, and gas will employ cyclonic technology. The use of cyclonic technology was chosen by the Applicant due to the reduced footprint requirements, compact size, and lack of moving parts. The Applicant maintains that the use of this type of separation technology also reduces the visual impact, and greatly simplifies the on-site maintenance, volume, and control requirements as compared to other more conventional technologies, such as Free Water Knock Out (FWKO) vessels, oil water separators, etc.

The production from the 421-2 well will be first routed into a Gas-Liquid Cyclone Separator (GLCS) located on the North East corner of the 421-2 caisson. The GLCS is a compact vertical vessel with a tangential nozzle located near the top. Incoming gross fluids will be subject to a hydraulically created vortex and resultant centrifugal forces, causing the heavier liquid particles to separate and thus obtaining split liquid and gas streams. The produced gas, which is separated from the gross fluids, will be routed through the top of the GLCS vessel for collection in an injection pipeline. A backpressure control valve will maintain desired backpressure on the gas side to ensure maximum separation efficiency. A meter will then be used to measure the amount of produced gas.

Liquids that are separated from the gas by the GLCS will be routed through a liquid Hydrocyclone separator located on the same skid, next to the GLCS. This vessel is also a compact, vertical vessel, which converts incoming pressure energy into centrifugal force, to promote separation of immiscible fluids of differing densities. An involute inlet is used to introduce a vortex in the fluid stream, thus driving the heavier particles (water) to the internal walls of the vessel and the lighter, oil particles into a central collection tube. The respective oil and water streams which are produced will be metered using Micro-Motion Coriolis meters, and the oil stream will be sent to the Line 96 for sales, and the water will be commingled with the produced gas and sent to existing well 421-1 initially and to Platform Holly at a later time for injection. No process equipment is to be installed aboard platform Holly as part of this project. Individual backpressure control valves on the oil and water streams will allow adjustment for optimum separation efficiencies. No water injection pumps will be installed at 421-1. The discharge pressure of the ESP will be sufficient to dispose of the produced water and gas.

1.4.3 Pipelines

Oil Pipeline

An existing wrapped and coated six inch shipping line runs from the 421-1 pier along a Venoco right-of-way approximately 1,300 feet along the old seawall to a point just south of the 12th tee of Sand Piper and then turns north into the Holly pipeline right of way and runs another 500 feet to the edge of the EOF. It connects to Line 96 at a valve box located on an easement granted to Venoco that lies just outside the limits of the EOF parcel, south of the heliport. This line was last hydrotested by Mobil in March 1994. The existing shipping line will be hydrotested to 100 psi and internally coated with a new plastic coating, as described below. The six-inch pipe will be protected against external corrosion by enhancing the impressed current cathodic protection system on the Holly pipelines to include the Lease 421 shipping line.

A pair of new two inch flowlines will be inserted inside of the existing six-inch pipeline; one line will be used to transport oil, and the other line will be used to transport produced water and gas.

Both flow lines will have a maximum operating pressure of 275 psig and a minimum hydrotest pressure of 425 psig and be rated for continuous operation at temperatures up to 130° F. At a minimum, the pipeline will hold the indicated test pressure for a period of not less than 8 hours. Hydrotest water will be provided by the Goleta Water District connection located at the

EOF and drained back to the EOF when hydrotesting is finished. The returned hydrotest water will be introduced into the oil processing system for treatment and disposal. A leak detection sensor will be provided within the six-inch line, which provides the annular space of the double wall piping system to provide indication and automatic shutdown in the event of a leak. In the event of a leak, the ESP well will be automatically shut in and an alarm will sound at the EOF.

Double wall piping will also be used for the exposed sections of the flowlines installed on the pier causeway. The primary carrier pipe on the pier causeway will also be protected by an outer containment pipe. This outer containment pipe will be monitored by the same monitoring system that monitors the six-inch containment piping onshore. The caissons of 421-1 and 421-2 will contain any potential leaks from the wellhead piping. Each well will also be equipped with a level switch to detect and alarm the build-up of liquids in the cellar.

In the event of a two-inch line leak, oil would be contained by the outer six inch pipe. Upon detection of liquid in the containment casing, or low pressure in the oil pipeline, the well pump will be shut in and the sub-surface and surface safety valves will close. It is expected that a complete shut-in would be affected within 15 seconds of leak detection.

The new two-inch flowlines will be steel coil tubing. The tubing will be purpose-designed and built for insertion service. The coil tubing will be two-inch diameter, 0.156-inch wall thickness, high strength steel with a minimum yield strength of 52,000 psi. The pipe will have a minimum pressure capacity of 3,500 psig. One or both of the flowlines will also be coated for corrosion protection, and to help reduce abrasion during the pipe pulling installation. The coating to be used will be either a factory applied Fusion Bonded Epoxy (FBE) system or an extruded polyethylene wrap system.

In the alternative, the Applicant proposes to utilize non-metallic pipe materials, such as fiberglass or high density polyethylene (HDPE) pipe. These materials offer good chemical resistance and excellent flexibility. Additionally, both materials are lighter and more flexible than traditional steel pipe, allowing a significant savings in time and equipment during installation. Because it is non-conductive and immune to galvanic electrochemical effects, fiberglass and HDPE will not corrode like metal piping. The material is also impervious to many aggressive chemicals as well as scale build-up. In the event the Applicant proposes to use an alternate pipe material, it will furnish additional technical information on the material. The final decision on the choice of material will be made after discussions with the US Department of Transportation, Office of Pipeline Safety.

Produced Water and Gas Pipeline

Produced water and gas will be routed through the second two-inch flowline to Well 421-1 for re-injection. As an alternative and to provide back-up water injection, the two-inch flowline will continue inside the six inch shipping line to a tie-in point to the existing four-inch utility line that runs from the EOF to Platform Holly. The produced water and gas would then be injected in the Monterey formation of the South Ellwood field. This utility line runs alongside the six inch shipping line at the Line 96-valve box.

During the first years of production, produced water will be disposed of in Well 421-1. As the water cut of 421-2 increases and the gas production decreases, the produced water will be switched over to the second flowline and routed to Platform Holly for disposal.

Oil and Produced Water and Gas Pipeline Installation

The internal pipe coating for the six-inch oil pipeline will be applied using a process known as “fold and form” sliplining. This is a process in which a thin-wall, High Density Polyethylene (HDPE) liner is temporarily deformed, into a “heart” shape cross-section, which will then allow direct insertion into the existing six-inch oil pipeline. After insertion, the pipe is “inflated” back into its correct cross section. The inflation process is accomplished using low-pressure (<100 psig) air or water. In some cases, a heated media, such as hot water, may be used to aid in restoring the final shape of the liner.

Within the existing six-inch oil line, at a point close to the location of the 1994 leak after which production from Well 421-2 ceased, there is an exposed section with two 90° bends where the protective wrapping has been lost. A section of pipe, approximately 25 feet in length, will be cut out and replaced with new wrapped six-inch pipe. The section will also serve as an intermediate pulling point for both the six-inch slipline and the two internal flow lines.

A pulling winch will be located at this location and will pull the six inch “fold and form” liner from two insertion points. One insertion point will be located in the Pier 421 access roadway, and the other insertion point will be located adjacent to the existing Line 96 tie-in vault located just outside the EOF fence, alongside the access roadway. After the liner has been pulled through each of the two pipeline segments, it will be inflated into final size and tested. The section of six-inch line between the two pulling locations will be temporarily left open in order to effect the pull of the two internal flowlines.

In a manner similar to the installation of the six inch “fold and form” liner, the two inch internal flow lines will be pulled into the now-internally lined six inch oil pipeline. Following integrity testing of the newly installed liner in the existing six inch pipeline, a pulling winch will again be located at the proposed pulling location. The two, two-inch flowlines will be pulled into this line from two directions; one insertion point will be located in the Pier 421 access roadway, and the other insertion point will be located adjacent to the existing Line 96 tie-in vault located just outside the EOF fence, alongside the access roadway. After the two flowlines have been pulled through each of the two pipeline segments, they will be fused together into one continuous segment and pressure tested. Final assembly will include installation of annular casing end seals and anchors at the ends of the existing six-inch outside pipe.

The final tie-ins will take place following successful integrity testing to the two, two-inch flowlines. Outside of the EOF, one line will be tied into the existing Line 96 pipeline, and the other line will be tied into the existing Platform Holly utility pipeline. Near Pier 421-1, the produced water/gas line will be looped within containment so as to serve the 421-1 injection well. At Pier 421-2, both lines will be connected to the 421-2 production equipment.

At the conclusion of the flowline installation work, the discontinuous six inch containment piping at the pipe pulling location will be "clam shelled" back together again, thus providing continuous 100% containment. The re-installation will again be pressure tested to verify containment piping integrity.

No trenching will be required other than to expose the ends of the existing shipping line, and to open up an intermediate point to repair the exposed section of six inch pipe.

1.4.4 Installation of Electrical Cables

The ESP pump at Well 421-2 will receive power through a direct burial and armored 200 KVA, 1,100 VAC power cable that will run underground within the existing access easement. The maximum electrical power requirement to operate Well 421-2 is 115 kW. In addition, a smaller 480 VAC cable will also be installed in the same excavation. This cable will provide electrical power for metering, well instrumentation and control systems, utility power receptacle, and an integral communication cable for data transfer. The delivery voltage of the utility power will be 480V, and a small step-down transformer will be installed in the Well 421-2 electrical panel to drop the voltage down to 120V. The utility power outlet will be located inside of the power panel, and will be a heavy duty, 20 Amp, "Arktite" type of plug receptacle. As previously indicated, this type of receptacle requires specially designed mating plugs which are circuit breaking and require a twist to lock action in order to engage or disengage.

The proposed new electrical cables will require a minimum burial depth of 24 inches beneath the existing access road and will be designated with power cable markers along the route. The cable route will be surveyed and staked within the access road right of way. A 2,500 feet by one foot by 30-inch deep trench will be excavated. Six inches of sand bedding will be placed into the bottom of the ditch. The two power cables will be placed into the ditch, and backfilled with a concrete slurry mixture to a minimum depth of six-inches over the cables. The remainder of the ditch will be filled using materials excavated from the site, and the surface will be restored. The estimated area of cable excavation is 6,250 square feet. Additional excavation will be required to effect repairs to the existing six-inch oil line at the 12th tee area and to expose piping between Piers 421.1 and Pier 421.2.

1.4.5 Communications

The Motor Control panel at the EOF will provide a Modbus digital output. The Motor Contoller will communicate with the existing EOF Remote Monitoring System (RMS), via a new, dedicated, Modbus Plus Based, cable link. A program logic controller (PLC) installed in the Motor Controller will collect both wellhead and separator data from the 421-2 pier and downhole performance data from the ESP. The status of Well 421-1 will be monitored by controlling the pressures and rates on the injection line running from Well 421-2. All of the operational systems and safety systems for the 421-2 well will be provided with a real time monitoring capability at the RMS Operator Interface Terminals (OIT) located in the EOF control room. All Local Alarms and Shutdown Safeties for each well will be displayed at the RMS. Both wells will have the capability of being shutdown remotely from the RMS, Operator Interface Terminal, and by the EOF Emergency Shutdown.

1.4.6 Construction Activities

Construction for the Project will involve the following sequence of events in which some of the tasks may occur concurrently.

1) Installation of electrical motor control panel, transformer, and power cable connections at the EOF;

2) Installation of Electric Submersible Pump (ESP) with tubing, packer and subsurface control equipment in well 421-2,

3) Installation of surface oil/water/gas separation, metering and control equipment at the 421-2 wellhead,

4) Pigging and clean-up of the existing six inch oil pipeline;

5) Cut-out and removal of two 90° bends within existing six inch oil pipeline; 5) insertion of two new two inch carrier pipelines within existing six inch oil line;

6) "Clamshell" restoration of existing six-inch pipeline at area where 90° bends removed;

7) Construction of new pipelines and containment on both piers;

8) Tie-in of pipelines to existing Line 96 oil pipeline and to existing Platform Holly utility line;

9) Trench excavation and installation of new power cables in existing access road;

10) Testing of pipelines and equipment;

11) Flushing and abandonment of existing buried flowlines; and

12) Work site restoration and cleanup.

The six-inch shipping line was flushed with water and hydro-tested in March 1994. It has not been used since. During the emergency repairs conducted in 2001, all other abandoned pipelines in the PRC421 access road were inspected, capped and left in place. Any field cuts will be made above a portable containment basin with a vacuum truck present to capture any fluid and prevent contamination to the surrounding environment. Insertion of the new plastic liner and the 2 two inch fiber-glass lines within the six inch shipping line will occur by placing the winches and spooling units at the intermediate block valve location or either end of the pipeline minimizing the impact on the Golf Course activities. Burial of the new power cable under the access road through the golf course area is expected to take one day.

The construction activity will be most notable during the periods of inserting the plastic liner and the two new coiled tubing lines within the six inch pipeline, burial of the power cable and movement of workover rig to and from Pier 421-2. Each one of these operations should be very brief.

During the construction phase of the Project, all construction equipment and materials will be staged in an existing easement area immediately adjacent to the EOF west fence line. A

30-foot by 30-foot helipad at the south end of the EOF may also be used as an additional staging area for vehicles and material should the need arise.

The down hole well work associated with Well 421-2 is expected to take a maximum of 15 days. A portable well service rig will be placed over Well 421-2 and proceed to remove the tubing, packers and flow isolation valves that were placed in the well during pressure control operations. Well 421-2 will be equipped with an ESP and SSSV. The completion work for both wells will be based upon a program and procedure approved and witnessed by the CSLC.

Best Management Practices (BMP's) will be implemented through the construction phase. Venoco will implement site-specific construction mitigation plans, including a traffic minimization plan and equipment refueling plan.

1.5 PROJECT SCHEDULE

It is anticipated that overall construction activities will require approximately 45 workdays following all project approvals. Unexpected delays could make these non-sequential days. As previously stated, oil production from the well is expected to last up to 12 years.

2.0 ALTERNATIVES ANALYSIS

In accordance with section 15126.6 of the State CEQA Guidelines (California Governor's Office of Planning and Research 2001), an EIR must "describe a range of reasonable alternatives to the Project, or to the location of the Project, which would feasibly attain most the basic objectives of the Project, but would avoid or substantially lessen any of the significant effects of the Project, and evaluate the comparative merits of the alternatives." The State CEQA Guidelines also require that a No Project Alternative be evaluated, and that under specific circumstances, an environmentally superior alternative be designated from among the remaining alternatives.

2.1 ALTERNATIVES PROPOSED FOR CONSIDERATION

This section includes a description of alternatives and provides a comparative analysis of the potential impacts from the alternatives to those identified for the proposed Project.

2.1.1 Alternative Project Component-Processing at the Ellwood Onshore Facility

Under this alternative component of the proposed Project, the processing of production fluids would occur at the EOF instead on Pier 421-2 into a GLCS.

2.1.2 No Project Alternative

Under the No Project Alternative, the existing wells would remain shut-in and equipped with subsurface safety valves. There would be no oil production from PRC 421.

3.0 POTENTIAL ENVIRONMENTAL EFFECTS

Although the design of the double walled pipelines should reduce chances for a spill to occur and installation of a leak detection sensor will shut the wells down in the event of a pipeline leak, the CSLC, acting as Lead Agency under the CEQA, has determined that: (1) there still is a reasonable possibility of an oil spill occurring from the oil production well during its lifespan; (2) such an oil spill could have a significant effect on the physical environment; and (3) other aspects of the project's construction and operations could also have a significant effect on the environment. Issues to be discussed in the EIR are described below. Proposed "Significance Criteria" that could be applied to each impact area are also listed.

3.1 Visual Resources

The area in which PRC 421 is located is surrounded by a golf course, the beach/ocean, and is considered scenic by local residents and visitors. The shoreline facilities are shielded by the coastal bluff and out of most public views. However, individuals frequenting the shoreline, the golf course or in vessels close to the shore may be sensitive to the visual impact of the modifications to Pier 421.2.

Significance Criteria

Visual impacts are considered significant if one or a combination of the following apply:

- The project is inconsistent with or in violation of public policies, goals, plans, laws, regulations or other directives concerning visual resources;
- Routine operations and maintenance visually contrast with or degrade the character of the viewshed; or
- The project results in a perceptible reduction of visual quality, lasting for more than one year that is seen from moderately to highly sensitive viewing positions. A perceptible reduction of visual quality occurs when, for a highly sensitive view, the visual condition is lowered by at least one Visual Modification Class (VMC); or for a moderately sensitive view, the condition is lowered by at least two VMCs.

3.2 Air Quality

The Santa Barbara County Air Pollution Control District (SBCAPCD) monitors the PRC 421 lease area. The EIR will analyze:

- The sources of emissions that would be associated with the Project, the types and amounts of different pollutants that could be emitted, and the duration of the impact; and
- Potential impacts and mitigation measures associated with odor and toxic air contaminant emissions.

Significance Criteria

The air quality impacts of the proposed Project would be significant if it:

- Contributes to an exceedance of localized Carbon Monoxide (CO) emissions in excess of the State Ambient Air Quality Standard i.e., 20 parts per million (ppm) for 1 hour (a single event or release) or 9 ppm for 8 hours (a continuous release);
- Results in emissions which exceed the following emission thresholds:
  - Reactive Organic Gases (ROG), 15 tons/year, 80 lbs/day,
  - Nitrogen Oxides, 15 tons/year, 80 lbs/day, and
  - PM_{10} Particulates (suspended particulate matter 10 microns or less in diameter), 15 tons/year, 80 lbs/day;
- Allows uses that create objectionable odors that would be considered a nuisance under SBCAPCD Rule 303, or exceed the offsite concentrations identified in SBCAPCD Rule 310;
- Exposes sensitive receptors (including residential areas) or the general public to substantial levels of toxic air contaminants or objectionable odors; or
- Results in the accidental release of acutely hazardous air emissions.

3.3 Biological Resources

Onshore sensitive biological resources include coastal scrub and wetland environments near the piers and along the onshore pipeline route and wintering and breeding habitat of the western snowy plover, a federally listed threatened species. Additionally, the project area is located near the Santa Barbara Channel (Channel), an important migration route for marine mammals, fishes and seabirds. The area also contains diverse and rich assemblages of resident marine flora and fauna. Issues associated with the Project include:

- Its potential adverse effects on the on- and offshore environments in the event of an accidental oil spill or subsequent clean up activities, as well as adjacent wetland losses resulting from discharge or oil spills.

Significance Criteria

An impact on biological resources will be considered significant if any of the following apply:

- There is a potential for any part of the population of a threatened, endangered, or candidate species to be directly affected or if its habitat is lost or disturbed;
- If a net loss occurs in the functional habitat value of: a sensitive biological habitat, including salt, freshwater, or brackish marsh; marine mammal haul-out or breeding area; eelgrass; river mouth; coastal lagoons or estuaries; seabird rookery; or Area of Special Biological Significance;

- There is a potential for the movement or migration of fish or wildlife to be impeded; or
- If a substantial loss occurs in the population or habitat of any native fish, wildlife, or vegetation or if there is an overall loss of biological diversity. Substantial is defined as any change that could be detected over natural variability.

3.4 Commercial and Sports Fisheries

The marine resources in the Santa Barbara Channel support commercial fisheries, mariculture, and kelp harvesting; however, because the proposed Project is on the immediate coastline, potential effects to commercial and recreational fisheries would be minimal.

3.5 Mineral Resources/Energy

The Project and/or alternatives have the potential to affect energy and mineral resources.

Significance Criteria

A significant impact would occur if the project would:

- Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state;
- Conflict with the adopted California energy conservation plans; or
- Use non-renewable energy resources in a wasteful and inefficient manner.

3.6 Geological Resources

The PRC 421 wells are located on a coastal marine terrace, approximately 2,600 feet south of the active More Ranch Fault. The facility would be susceptible to damage as a result of an earthquake on this nearby fault or from several other faults active in the area. Seismically induced ground failure or other geologic hazards, such as corrosion or excessive coastal erosion, could result in an oil spill. . Remediation of such spills would, in turn, potentially cause soil erosion induced water quality impacts to nearby Devereux Slough and the Pacific Ocean.

Significance Criteria

Seismic effects could result in significant hazards to structures when facility design or construction is insufficient. Impacts are considered significant if any of the following conditions apply:

- Settlement of the soil that could substantially damage structural components of the wells;
- Ground motion due to a seismic event that could induce liquefaction, settlement, or a tsunami that could damage structural components;

- Deterioration of structural components of PRC 421due to corrosion, weathering, fatigue, or erosion that could reduce structural stability; or

- Damage to petroleum pipelines and/or valves along the pipelines from any of the above conditions that could release crude oil into the environment.

3.7 Hazards and Hazardous Materials

This section will describe those aspects of the existing environment and structural integrity of the facilities that may impact operational safety, or that may be affected by an accident associated with the operation of the oil well, including the transportation of crude oil and petroleum products to and from the offshore facilities. Additionally, handling petroleum products has an inherent risk of accidents that may involve fire, explosions and/or spills. The EIR will address the potential adverse health consequences, e.g., exposure to toxic and hazardous substances, fire, explosions or spills in conjunction with continued use of the facility. The analyses will include

- Evaluation of the risk of an accident/explosion and release of hazardous substances and the impact on plant and animal life;
- Evaluation of the human and technological safety of oil wells, pipelines, and processing facility operations;
- Evaluation of the project's oil spill prevention and response and hazardous materials plans and their effectiveness, with emphasis on prevention, equipment and deployment capabilities and procedures; and
- Modeling of the spread of an oil spill, which could occur, and evaluation of its potential impact on plant and animal life under different current conditions and seasonal variations.

Significance Criteria

A hazards and/or hazardous materials impact is considered significant if any of the following apply:

- If the existing facility does not conform to its oil spill contingency plans or other plans that are in effect; or if current or future operations may not be consistent with federal, state or local regulations. Conformance with regulations does not necessarily mean that there are not significant impacts;

- There is a potential for fires, explosions, releases of flammable or toxic materials, or other accidents from the wells or pipelines that could cause injury or death to members of the public;

- Existing and proposed emergency response capabilities are not adequate to effectively mitigate spills and other accident conditions.

Although the potential for oil or product spills will be discussed in this section, the potential impact of spills will also be analyzed in other, appropriate resource-related sections e.g., marine biology, water quality, land and recreation uses.

3.8 Hydrology, Water Resources and Water Quality

The significance of impacts will be considered in the context of whether PRC 421 operations would likely result in pollutant levels above ambient water quality and sediment levels that would exceed water quality objectives of the Central Coast Regional Water Quality Control Board or the State Water Resources Control Board.

Resumption of oil production could result in oil spills due to geologic hazards, mechanical failure, structural failure, or human error. Such spills could potentially result in water quality impacts the beach, shallow groundwater, and the Pacific Ocean. Potential impacts to the marine environment include increased water column turbidity and the introduction of toxic contaminants into the water column.

Significance Criteria

Impacts to marine water quality are considered significant if any of the following apply:

- The water quality objectives contained in the Water Quality Control Plan for the Central Coast are exceeded;
- The water quality objectives in the California Ocean Plan (SWRCB 1997) are exceeded;
- The water quality criteria in the Proposed California Toxics Rule (EPA 1997) are exceeded;
- Project operations or discharges that change background levels of chemical and physical constituents or elevate turbidity producing long-term changes in the receiving environment of the site, area, or region, thereby impairing the beneficial uses of the receiving water occur; or
- Contaminant levels in the water column, sediment, or biota are increased to levels shown to have the potential to cause harm to marine organisms even if the levels do not exceed formal objectives in the Water Quality Control Plan.

3.9 Land Use, Planning and Recreation

Returning PRC 421.2 to production will be examined in light of existing and planned land uses in the Goleta coastal area, including existing and potential shoreline and water-related recreational use.

Significance Criteria

Land use/recreational impacts will be considered significant if the project would result in the following:

- Conflicts with adopted land use plans, policies, or ordinances;
- Result in conflicts with planning efforts to protect the recreational resources of the project area;
- Incompatible adjacent land uses as defined by planning documentation; or
- Residual impacts on sensitive shoreline lands, and/or water and non-water recreation due to a release of oil.

3.10 Noise

The use of a downhole ESP pump will eliminate the surface pumping equipment and therefore the noise associated with the previous oil pumping equipment. However, construction activities may generate noise to sensitive receptors.

Significance Criteria

A noise impact is considered significant if:

- Noise levels from project construction activities exceed criteria defined in a noise ordinance or general plan of the local jurisdiction in which the activity occurs or may have direct or indirect affects.

3.11 Fire Protection/Emergency (Oil Spill) Response

The CSLC has determined that there is a reasonable possibility of an oil spill occurring from Well 421.2during its projected operational life. . This could have a significant effect on the physical environment and require additional fire protection and emergency response services.

Significance Criteria

Impacts to fire protection and emergency response services would be considered significant if:

- Continued operation of the project creates the need for one or more additional personnel to maintain the current level of fire protection and emergency response services.

3.12 Vehicular Transportation

The Project is not expected to have significant effects on transportation or circulation in the area. However, the potential for impacts associated with construction and work over activities will be examined.

Significance Criteria

Traffic impacts would be considered significant if any of the following apply:

- Project traffic or construction must use an access road that is already at or exceeds Level of Service (LOS) E or brings a roadway down to LOS E; or

- Results in a roadway being degraded to a higher LOS as a result of the project.

3.13 Cultural Resources

The State CEQA Guidelines (section 15064.5) define "historical resources" as follows:

Any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California may be considered to be an historical resource, provided the lead agency's determination is supported by substantial evidence in the light of the whole record. Generally, a resource shall be considered by the lead agency to be "historically significant" if the resource has integrity and meets the criteria for listing on the California Register of Historical Resources as follows:

(A) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
(B) Is associated with the lives of persons important in our past;
(C) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or
(D) Has yielded, or may be likely to yield, information important in prehistory or history.

Significance Criteria

Thresholds of significance for cultural resource impacts for the project are defined as situations where construction or operation of the project could:

- Result in damage to, the disruption of, or adversely affect a property that is listed in the California Register of Historical Resources (CRHR) or a local register of historical resources as per Section 5020.1 of the Public Resources Code;

- Cause damage to, disrupt, or adversely affect an important prehistoric or historic archaeological resource such that its integrity could be compromised or eligibility for future listing on the CRHR diminished; or

- Cause damage to or diminish the significance of an important historical resource such that its integrity could be compromised or eligibility for future listing on the CRHR diminish.

3.14 Environmental Justice

The CSLC developed and adopted an Environmental Justice Policy to ensure equity and fairness in its own processes and procedures. This policy stresses equitable treatment of all members of the public and commits to consider environmental justice in its processes, decision-making, and regulatory affairs which is implemented, in part, through identification of, and communication with, relevant populations that could be adversely and disproportionately impacted by CSLC projects or programs, and by ensuring that a range of reasonable alternatives is identified that would minimize or eliminate environmental impacts affecting such populations.

This portion of the EIR will analyze the distributional patterns of high-minority and low-income populations on a regional basis. The analysis will focus on whether the proposed project's impacts will have the potential to affect an area(s) of high-minority population(s) and low-income communities disproportionately, thereby creating an environmental justice impact.

Significance Criteria

An environmental justice impact would be considered significant if the proposed Project would:

- Have a potential to disproportionately impact minority and/or low-income populations at levels exceeding the corresponding medians for the County in which the project is located; or

- Result in a substantial disproportionate decrease in the employment and economic base of minority and/or low-income populations residing in the County and/or immediately surrounding cities.

3.15 Cumulative Effects

In accordance with the CEQA section 15130, the EIR will discuss the cumulative impacts of the proposed Project and address the likelihood of occurrence and severity of the potential impacts. The EIR will discuss other oil production operating in the area, foreseeable projects in the general vicinity, and projects in or near PRC 421.